CONTENTS

SECTION A—VOL. LXV

No. 1—January 1967

PAGE

Infra-red Spectral Studies of CHF_2-$CHCl_2$ and $CBrCl_2$-$CBrCl_2$ . . . . . V. B. Kartha, Santha B. Kartha and N. A. Narasimham 1

Determination of the Flux of Primary Cosmic Ray Hydrogen and Helium Nuclei Near the Geomagnetic Equator Using Nuclear Emulsions. III. The Flux of Deuterons on March 12, 1960, at Hyderabad . . . . . S. N. Ganguli, N. K. Rao and M. S. Swami 19

Measurement of True Angular Correlation in Fe^{57} in a Single Crystal of Metallic Cobalt . . . . . Girish Chandra 25

Conformational Aspects in Chromic Acid Oxidations—Oxidation of Some Cyclanols by Chromium (VI) Oxide . . . . . G. Srinivasan and N. Venkatasubramanian 30

Delayed Effects of Sudden Ionospheric Disturbances on 164 Kc/s Transmission Between Tashkent and Ahmedabad . . . . . S. Ananthakrishnan and K. R. Ramanathan 38

Thickness Effect in the X-ray K Absorption Edge of Nickel . . . . . T. V. Krishnan and Amar Nath Nigam 45

Yield Surfaces for Non-Homogeneous Anisotropic Shells of Revolution . . . . . R. Sankaranarayanan 49

Derivation of Transitional Asymptotic Expansions from Integral Representations. I. Modified Hankel and Anger Functions . . . S. C. Malaviya 62

No. 2—February 1967

The Measurement of Tritium Activity in Natural Waters. Part II. Characteristics of Global Fallout of H^3 and Sr^{90} . . . . . R. N. Athavale, D. Lal and Rama 73

He^8 Nuclei in the Low Energy Primary Cosmic Radiation . . . . . S. Biswas, P. J. Lavakare, S. Ramadurai and N. Sreenivasan 104

Complex Formation Between Cadmium and Thiosalicylic Acid . . . . . A. N. Kumar and H. L. Nigam 119

No. 2—February 1967—*Contd.*

PAGE

Vinyl Polymerization. IV. Co^{3} Tert. Butylalcohol Red-ox System . . . . . K. Jijee and M. Santappa 124

Mechanical Response in a Piezoelectric Transducer Subjected to a Constant Flow of Heat and a Step-Voltage Input . . . . . D. K. Sinha 136

On a Class of Sets—I . . . . . E. Sampathkumar 143

Antipyrine Complexes of Rare Earth Perchlorates . . . . . V. N. Krishnamurthy and S. Soundararajan 148

No. 3—March 1967

Oxidation Studies. II. Oxidation of Water and Tertiary Alcohols by Cobaltic Ions . . . . . K. Jijee and M. Santappa 155

Thermal Stresses in a Plate with Transversely Isotropic Material . . . . . Yoginder Kumar Mehta 170

On the Flow of an Electrically Conducting, Incompressible Fluid Near an Accelerated Plate in the Presence of a Parallel Plate, under Transverse Magnetic Field . . . . . V. M. Soundalgekar 179

Kinetic Studies in Ester Hydrolysis. Part XVI. The Alkaline Hydrolysis of Some Dicarboxy Esters in Dioxan-Water and Acetone-Water Systems . . Sekharipuram V. Anantakrishnan and R. V. Venkatarathnam 188

Solvent Effects on Proton Chemical Shifts in Thiophenes . . . . . C. R. Kanekar, G. Govil, C. L. Khetrapal and M. M. Dhingra 195

Aromaticities of Monosubstituted Benzenes and Thiophenes . . . . . M. M. Dhingra, G. Govil, C. R. Kanekar and C. L. Khetrapal 203

No. 4—April 1967

Paramagnetic Resonance of Gd^{3+} in $SmCl_3.6H_2O$ Single Crystals . . . . . G. B. Singh and Putcha Venkateswarlu 211

The Effect of Ionisation Loss on the Energy Spectra of Cosmic Ray Nuclei Undergoing Fermi Acceleration . . . . . S. Ramadurai 219

Trigonometric Sums and Fresnel-Type Integrals . . . . . R. D. Halbgewachs and S. M. Shah 227

No. 4—April 1967—*Contd.*

PAGE

A Note on the Inversion of the Convolution Transform . J. Sudarsana Rao 233

Study of Hyperfragments. Part V. Analysis of Light Hyperfragments . . . . K. N. Chaudhari, S. N. Ganguli, N. K. Rao and M. S. Swami 240

Structural Study of Niobium-Iron Alloys . . . . . A. Raman 256

No. 5—May 1967

Self-Association in Aromatic Thiols . . . . . C. R. Kanekar, G. Govil, C. L. Khetrapal and M. M. Dhingra 265

Note on the Locally Product and Almost Locally Product Structures . . . . . Muppinaiya Nagaraj 270

Studies in the Hydrolysis of Metal Ions. Part I. Copper . . . . . S. Mahapatra and R. S. Subrahmanya 283

On Integrals Involving Hypergeometric Functions . . . . C. L. Parihar 291

Kinetic Studies in Ester Hydrolysis. Part XVII. The Acid and Alkaline Hydrolysis of Diethyl Maleate and Diethyl Fumarate . . . . . Sekharipuram V. Anantakrishnan and R. V. Venkataratnam 298

ESR Study of Dibarium Copper Formate Tetrahydrate. Part I . . . . . T. Ramasubba Reddy and R. Srinivasan 303

No. 6—June 1967

Recent Observations on Cosmic Electrons and Their Consequences on Different Cosmic Ray Models and Related Astrophysical Quantities . . . . . R. R. Daniel and S. A. Stephens 319

High Speed Binary Rate Multiplier . . . . . S. Vasantha 340

High Energy Photons from the Crab Nebula due to the Universal Microwave Field . . . . . M. V. K. Apparao 349

Proton Chemical Shifts and Pi-Electron Densities in Substituted Benzenes . . . . . C. R. Kanekar, G. Govil and C. L. Khetrapal 353

EPR Spectrum of Gadolinium in Hydrated Praseodymium Nitrate . . . . . G. B. Singh and Putcha Venkateswarlu 361

No. 6—June 1967—*Contd.*

PAGE

ESR Study of Dibarium Copper Formate Tetrahydrate. Part II. Optical Absorption and Temperature Dependence of Spin-Hamiltonian Parameters . . . . . T. Ramasubba Reddy and R. Srinivasan 368

X-ray Spectroscopic Evidence for Chemical Bonding in Manganese Selenide (MnSe) . . . . . .Chintamani Mande and A. S. Nigavekar 376